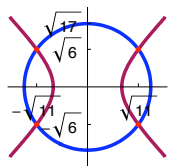
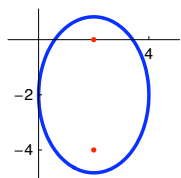


SVAR

1. $\frac{111041}{33300}$
2. 4
3. $-1 < x < 0$ eller $x > 1$
4. $x < -2$ eller $x > 0$
5. $x = 5$
6. $x = e$
7. $\{(\sqrt{11}, \sqrt{6}), (-\sqrt{11}, \sqrt{6}), (-\sqrt{11}, -\sqrt{6}), (\sqrt{11}, -\sqrt{6})\}$

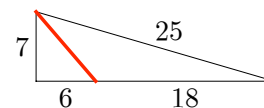


8. $x = \pi n + \frac{\pi}{4}, n \in \mathbb{Z}$
9. $x = 2n\pi - \frac{\pi}{12}$ eller $x = 2n\pi + \frac{7\pi}{12}, n \in \mathbb{Z}$
10. Sätt z till 1 i binomialutvecklingen av $(z+1)^n$.
11. $\binom{50}{10} \left(\frac{1}{x}\right)^{40} (2x^4)^{10} = 10\,518\,812\,846\,080$.
12. Den givna ekvationen är ekvivalent med $\left(\frac{x-2}{2}\right)^2 + \left(\frac{y+2}{2\sqrt{2}}\right)^2 = 1$, som beskriver en ellips centrerad i $(x, y) = (2, -2)$ med brännpunkterna $(2, 0)$ respektive $(2, -4)$.

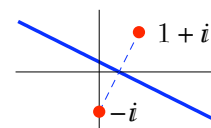


13. Uttrycket i vänsterledet kan skrivas $5\left(\left(x - \frac{3}{5}y\right)^2 + \frac{y^2}{25}\right)$ vilket aldrig är mindre än noll.
14. (a) inga lösningar, (b) $x < 0$, (c) $-2 < x < 0$

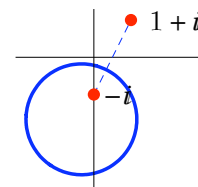
15.



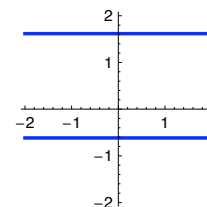
16. $x = 4n + \frac{3}{2}$ eller $x = 4n - \frac{3}{2}, n \in \mathbb{Z}$.
17. En cirkel med radie 1 centrerad i punkten i .
18. (a) $2x + 4y = 1$.



18. (b) $\left(x + \frac{1}{3}\right)^2 + \left(y + \frac{5}{3}\right)^2 = \frac{20}{9}$.



19. Två parallella linjer $y = \frac{1+\sqrt{5}}{2}$ resp. $y = \frac{1-\sqrt{5}}{2}$.



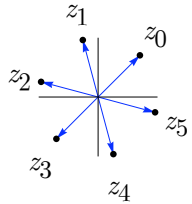
20. 8

21. Polärt: $z_n = \sqrt{2} e^{(\frac{\pi}{4} + \frac{n\pi}{3})i}, n \in \{0, 1, 2, 3, 4, 5\}$;

Cartesiskt: $z_3 = -z_0 = -1 - i$

$$z_4 = -z_1 = -\frac{1}{2} + \frac{\sqrt{3}}{2} - i\left(\frac{1}{2} + \frac{\sqrt{3}}{2}\right)$$

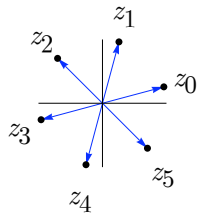
$$z_5 = -z_2 = \frac{1}{2} + \frac{\sqrt{3}}{2} - i\left(-\frac{1}{2} + \frac{\sqrt{3}}{2}\right)$$



22. Polärt: $z_n = e^{i(\frac{\pi}{12} + \frac{n\pi}{3})}$, $n \in \{0, 1, 2, 3, 4, 5\}$,

Cartesiskt: $z_0 = \frac{\sqrt{2} + \sqrt{6}}{4} + \frac{\sqrt{3} - 1}{2\sqrt{2}}i$, $z_1 = \frac{\sqrt{3} - 1}{2\sqrt{2}} + \frac{\sqrt{2} + \sqrt{6}}{4}i$, $z_2 = \frac{-1 + i}{\sqrt{2}}$,

$$z_3 = -\frac{\sqrt{2} + \sqrt{6}}{4} + \frac{1 - \sqrt{3}}{2\sqrt{2}}i, z_4 = \frac{1 - \sqrt{3}}{2\sqrt{2}} - \frac{\sqrt{2} + \sqrt{6}}{4}i, z_5 = \frac{1 - i}{\sqrt{2}}$$



23. $-2i$, $2i$, $1 - i$, $1 + i$.

24. Nej.

25. $(x - 1)^4$ eller $(x + 1)^4$ eller $(x + 1)^2(x - 1)^2$

26. $a = -1$: rötter $1, -1, -1$; $a = 2$: rötter $1, -1 + i\sqrt{3}, -1 - i\sqrt{3}$

27. $\{2 - i, 2 + i, 2, 2\}$

28. (a) $a(n) = n + 1$

30. (a) $f(n) = 2^n - 1$

33. 7

34. $\binom{9}{5} = 126$ resp. $\binom{10}{5} = 252$.

35. $\binom{17}{4}\binom{13}{3}\binom{10}{2}\binom{8}{2}6!$

36. $\binom{n}{2} - (n - 1)$

37. 36